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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.      | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------|------------------|
| 10/074,082   | 02/12/2002  | Charles E. Taylor    | SHPR-01041USL<br>SRM/SDS | 8109             |
| 23910  | 7590        | 01/24/2005           | EXAMINER                 |                  |
| FLIESLER MEYER, LLP<br>FOUR EMBARCADERO CENTER<br>SUITE 400<br>SAN FRANCISCO, CA 94111 |             |                      | MCDONALD, RODNEY GLENN   |                  |
|  |             |                      | ART UNIT                 | PAPER NUMBER     |
|  |             |                      | 1753                     |                  |

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/074,082

Applicant(s)

TAYLOR ET AL.

Examiner

Rodney G. McDonald

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 7-9, 17-24, 27, 48, 51, 53, 57, 58, 61, 63, 65, 67-70, 75-77, 79-85 and 123-128 is/are allowed.
- 6) ☒ Claim(s) 50, 55, 56 and 113-122 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10-2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Continuation of Disposition of Claims: Claims pending in the application are 1-4,7-9,17-24,27,48,50,51,53,55-58,61,63,65,67,70,75-77,79-85 and 113-128.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

Claims 115, 116, 119, 120, 121 and 122 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 115, line 1, "the focus electrodes" lack antecedent basis.

Claims 119-122 are indefinite because they depend on canceled claim 49.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 50, 55, 56, 113, 114, 117 and 118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torok et al. (U.S. Pat. 4,812,711).

Torok et al. teach an arrangement for transporting air. (See Abstract) In Fig. 4 the negative terminal of a d.c. voltage source is connected to the target electrode M and then to earth. The positive terminal is connected to the corona electrode K. In order to prevent ions from migrating upstream from the corona electrode K, a screen electrode S is arranged upstream of the corona electrode K and connected thereto so that the screen electrode and the corona electrode K both have mutually the same potential. The screen electrode may have one of a number of different forms, depending upon the construction or form of the corona electrode used. When the corona electrode K

Art Unit: 1753

comprises a thin, straight wire, the screen electrode may, for example, have the form of a rod or a helically formed wire. The screen electrode may also comprise a plurality of rods or wires arranged in mutually parallel relationship or in a diamond configuration.

The screen electrode S may also be in the form of a net or grid-like structure.

Alternatively, the screen electrode may comprise electrically conductive surfaces placed in the close proximity of the wall of an airflow duct 1 or on the inner surfaces of said wall. In principle, the screen electrode S is given a geometric configuration and position relative to the corona electrode K such that the screen electrode S forms an equipotential barrier or surface, which is impermeable to ions emanating from the corona electrode K. (Column 12 lines 23-53)

The screen electrode S need not necessarily be electrically connected directly to the corona electrode K, but may also be connected to the one terminal of a further d.c. voltage source 4, as schematically illustrated in FIG. 5, in a manner such that the screen electrode S has the same polarity as the corona electrode K in relation to the target electrode M, and preferably a potential which coincides substantially with the potential of the corona electrode K. (Column 12 lines 48-53)

The screen electrode can be in the form of a ring. (Column 14 lines 59-61)

In Fig. 7 the second electrode can be in the form of a ring. (See Fig. 7; Column 14 lines 49-52) In Fig. 9 there is multiple target electrodes with the screen electrode, corona electrode and one of the target electrodes in-line with each other. (See Fig. 9)

In Fig. 10 there is multiple rod screen electrodes, multiple wire corona electrodes and multiple rod target electrodes. (See Fig. 10) In Fig. 12 multiple rod screen electrodes are placed across the chamber with the corona and target electrodes in-line. (See Fig. 12)

In principle it is known that the transportation of air can be achieved with the aid of so-called ion-wind or corona-wind. An ion-wind is created when a corona electrode and a target electrode are arranged at a distance from one another and each connected to a respective terminal of a direct-current voltage source, the corona-electrode design and the voltage of the direct-current voltage source being such as to cause a corona discharge at the corona electrode. This corona discharge results in ionization of the air, with the ions having the same polarity as the polarity of the corona element, and possibly also electrically charged so-called aerosols, i.e. solid particles or liquid particles present in the air and becoming electrically charged upon collision with the electrically charged air ions. The air ions move rapidly, under the influence of the electric field, from the corona electrode to the target electrode, where they relinquish their electric charge and return to electrically neutral air molecules. During their passage between the electrodes, the air ions are constantly in collision with the electrically neutral air molecules, whereby the electrostatic forces are also transferred to these latter air molecules, which are thus drawn with the air ions in a direction from the corona electrode to the target electrode, thereby causing air to be transported in the form of a so-called ion-wind or corona-wind. (Column 1 lines 33-51)

The positive charge on the corona electrode produces less ozone and produces ions. (Column 10 lines 37-45)

The corona discharge electrode can also comprise a plurality of thin wires or filaments arranged either parallel with one another or in the form of an open mesh grid or net. Instead of using straight, thin wires or filaments, the wires may be wound spirally, or thin strips exhibiting straight, serrated or undulating edge surfaces may be arranged in a similar manner. The corona electrode may also comprise one or more needle-like electrode elements directed substantially axially in the airflow duct 1. (Column 9 lines 57-63)

In the Figures air flows in the direction of 2 along an inlet and outlet of the ducts and the first electrode is closer to the air inlet while the second electrode is closer to the air outlet (See Figures)

Regarding Applicant's claim 113, Torok suggest an ion generator (Column 5 lines 32-36) with a first electrode K, a pair of second electrodes M, a voltage generator 3 connected to the first electrode and the pair of second electrodes M, and a focus electrode S having a concave surface relative to the first electrode K. (See Figure 4 for Example; Torok et al. discussed above) The S electrode prevents ions from migrating upstream and thus urges ions toward the pair of second electrodes. (Column 13 lines 2-4)

Regarding Applicant's claim 114, from Figure 7 the S electrode is suggested as perforated with a hole. (See Figure. 7; Column 14 line 51)

Regarding Applicant's claim 117, the S electrode has a higher positive potential than the K electrode and is therefore less emissive. (Column 13 lines 1-2)

Regarding Applicant's claim 118, From Fig. 4 the S electrode is electrically connected to the first electrode. (See Figure 4)

***Allowable Subject Matter***

Claims 1-4, 7-9, 17-24, 27, 48, 51, 53, 57, 58, 61, 63, 65, 67-70, 75-77, 79-85, 123-128 are allowed.

Claims 115 and 116 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-4, 7, 8, 9, 17, 18, 19, 20, 21, 22, 23, 24, 27, 51, 57, 58, 61, 65, 67, 68, 69 and 70 are allowable over the prior art of record because the prior art of record does not teach ion generator as claimed including the arrangement of electrodes required by the claims.

Claims 48, 53 and 63 are allowable over the prior art of record because the prior art of record does not teach the device that transports and conditions air as claimed including the arrangement of electrodes as required by the claims.

Claims 75, 76, 77, 79, 80, 81, 82, 84 and 85 are allowable over the prior art of record because the prior art of record does not teach an electro-kinetic air transporter-



Art Unit: 1753

conditioner having an ion generator as claimed including the arrangement of electrodes as claimed.

Claims 115 and 116 are indicated as being allowable over the prior art of record because the prior art of record does not teach the geometric arrangement of electrodes as claimed.

Claims 123 and 124 are allowable over the prior art of record because the prior art of record does not teach an air-transporter conditioner system as claimed including the arrangement of electrodes.

Claims 125 are allowable over the prior art of record because the prior art of record does not teach an air transporter-conditioner system as claimed with the at least one focus electrode including a curved surface so that the curved surface is concave relative to a respective emitter electrode.

Claims 126 are allowable over the prior art of record because the prior art of record does not teach an ion generator as claimed including the arrangement of electrodes as claimed.

Claims 127 are allowable over the prior art of record because the prior art of record does not teach an ion generator as claimed including the arrangement of electrodes as claimed.

Claims 128 are allowable over the prior art of record because the prior art of record does not teach an ion generator as claimed including the arrangement of electrodes as claimed.

### ***Response to Arguments***

Applicant's arguments filed 10-28-04 have been fully considered.

Applicant's amendments and arguments have overcome all but the rejections to claims 50, 55 and 56 and rejections to claims 113, 114, 117 and 118.

In response to the argument that Torok does not teach focusing particulate matter within the flow of air toward the second electrode from a position upstream of the first electrode, it is argued that Torok do suggest at Column 33-51 that solid particles in the air stream move under the influence of the electric field. Further Torok at Column 22 lines 17-31 suggest that impurities (i.e. particles in the air) can become electrically charged and move toward the electrode M in the apparatus.

In response to the argument that Claims 113, 114, 117, and 118 are allowable over the prior art, it is argued that these claims are not allowable as set forth above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1753

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rodney G. McDonald  
Primary Examiner  
Art Unit 1753

RM  
January 21, 2005